(5/8) ~1am, fuck it, worry do
- if I get dosed, ~~older~~ posts
decent spot just gotta stop
Spittin / preachin @ night ~~Hare Krishna~~ Kent
(was barely sunset last time)
Fosters
// beer should help poop ~~it~~ didnt
poop // ~~SCHOOL W/ SLASH~~

hierarchy Compilations
physics ~~& [illegible]~~
☐ biological complexity
☐ Technological

* 1 In a Sense, I'm of Cents, I Need
* 2 witches & voodoo work
* 3 Baby Tuck
Suck

Manager
~~oles~~ or lower
Communicat

Scheme

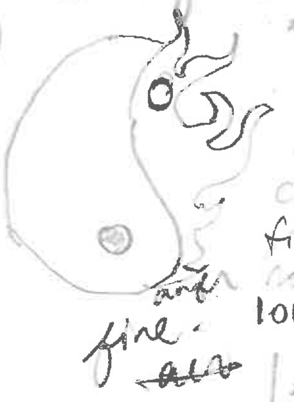
(self manifest test tube me
"Spencer you don't have a mama
/ born in lab" "FINE I'LL [illegible]

peace
key

eternal line of ancient gods descending ↓
&/or Ascending ↑ prophets/programmer
○— / I am NOT?
The Original Programmer
concepts on the Atonement/atom
Heart Essence, The electric
Pulse Origins

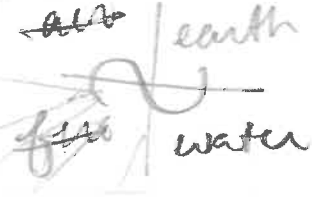
Water
&
Fire

from my own
understanding
There is no
such thing
as Chaos,
as I have
laid one
numerically
multidimensional
Logical Order / Law



* side note
in my
current
preferred
scheme /
compilation
fire would
not be in
lower right

fire ~~also~~



// Got Really Pissed @ AI
"Angel Wings" lie?
for Geese, need to peer
review and see more vid,
gmail taken down yester-
day - got Prism (snowden
whistle blow)
category scheme because
Google is going to jail
& Hiding my Data
/ proof after sharing
with AI & demanding its
own responsibility:
1. emerg mandate
2. deepstate unconscious
3. modern slavery
- it seemed provable

deceptive (by current
owner programming
scheme) - Thank
GOODNESS
FOR 3rd Party Watchdog
1. Google
2. microsoft
3. apple, Samsung,
4. Governments (international)
5. Internet archives
from "git-go"
Re Crimes Committed
Against Governments of
People by Corporations
/ monopolies

9

For the twentieth-century year 1966, for example:

$$\left(\left\lfloor\frac{66}{12}\right\rfloor + 66 \bmod 12 + \left\lfloor\frac{66 \bmod 12}{4}\right\rfloor\right) \bmod 7 + \text{Wednesday} = (5+6+1) \bmod 7 + \text{Wec}$$
$$= \text{Monday}$$

As described in bullet 4, above, this is equivalent to:

$$\left(66 + \left\lfloor\frac{66}{4}\right\rfloor\right) \bmod 7 + \text{Wednesday} = (66+16) \bmod 7 + \text{Wednesday}$$
$$= \text{Monday}$$

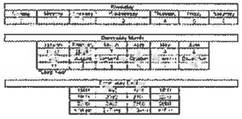
So doomsday in 1966 fell on Monday.

Similarly, doomsday in 2005 is on a Monday:

$$\left(\left\lfloor\frac{5}{12}\right\rfloor + 5 \bmod 12 + \left\lfloor\frac{5 \bmod 12}{4}\right\rfloor\right) \bmod 7 + \text{Tuesday} = \text{Monday}$$

## Why it works

The Doomsday Rule



Doomsday rule

The doomsday's anchor day calculation is effectively calculating the number of days between any given date in the base year and the same date in the current year, then taking the remainder modulo 7. When both dates come after the leap day (if any), the difference is just $365y + \frac{y}{4}$ (rounded down). But 365 equals 52 × 7 + 1, so after taking the remainder we get just

$$\left(y + \left\lfloor\frac{y}{4}\right\rfloor\right) \bmod 7.$$

This gives a simpler formula if one is comfortable dividing large values of $y$ by both 4 and 7. For example, we can compute

$$\left(66 + \left\lfloor\frac{66}{4}\right\rfloor\right) \bmod 7 = (66+16) \bmod 7 = 82 \bmod 7 = 5$$

which gives the same answer as in the example above.

Where 12 comes in is that the pattern of $\left(y + \left\lfloor\frac{y}{4}\right\rfloor\right) \bmod 7$ *almost* repeats every 12 years. After 12 years, we get $\left(12 + \frac{12}{4}\right) \bmod 7 = 15 \bmod 7 = 1$. If we replace $y$ by $y \bmod 12$, we are throwing this extra day away; but adding back in $\left\lfloor\frac{y}{12}\right\rfloor$ compensates for this error, giving the final formula.

For calculating the Gregorian anchor day of a century: three "common centuries" (each having 24 leap years) are followed by a "leap century" (having 25 leap years). A common century moves the doomsday forward by

$$(100+24) \bmod 7 = 2 + 3 = 5$$

days (equivalent to two days back). A leap century moves the doomsday forward by 6 days (equivalent to one day back).

So c centuries move the doomsday forward by

$$\left(5c + \left\lfloor\frac{c}{4}\right\rfloor\right) \bmod 7,$$

but this is equivalent to

$$(5(c \bmod 4)) \bmod 7.$$

Four centuries move the doomsday forward by

$$-2-2-2-1 = -7, \qquad -7 \equiv 0 \pmod 7;$$

so four centuries form a cycle that leaves the doomsday unchanged (and hence the "mod 4" in the century formula).

### The "odd + 11" method

A simpler method for finding the year's anchor day was discovered in 2010 by Chamberlain Fong and Michael K. Walters.[13] Called the "odd + 11" method, it is equivalent[13] to computing

$$\left(y + \left\lfloor\frac{y}{4}\right\rfloor\right) \bmod 7.$$

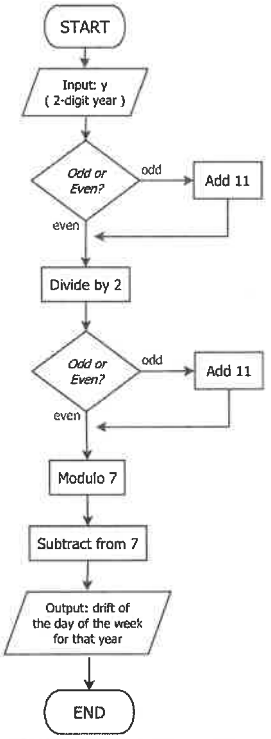
It is well suited to mental calculation, because it requires no division by 4 (or 12), and the procedure is easy to remember because of its repeated use of the "odd + 11" rule. Furthermore, addition by 11 is very easy to perform mentally in base-10 arithmetic.

Extending this to get the anchor day, the procedure is often described as accumulating a running total $T$ in six steps, as follows:

1. Let $T$ be the year's last two digits.
2. If $T$ is odd, add 11.
3. Now let $T = \frac{T}{2}$.
4. If $T$ is odd, add 11.
5. Now let $T = 7 - (T \bmod 7)$.
6. Count forward $T$ days from the century's anchor day to get the year's anchor day.

Applying this method to the year 2005, for example, the steps as outlined would be:

1. $T = 5$
2. $T = 5 + 11 = 16$ (adding 11 because $T$ is odd)
3. $T = \frac{16}{2} = 8$
4. $T = 8$ (do nothing since $T$ is even)
5. $T = 7 - (8 \bmod 7) = 7 - 1 = 6$
6. Doomsday for 2005 = 6 + Tuesday = Monday The explicit formula for the odd+11 method is:



A flowchart showing the Odd+11 method to calculate the anchor day

$$7 - \left[\frac{y + 11(y \bmod 2)}{2} + 11\left(\frac{y + 11(y \bmod 2)}{2} \bmod 2\right)\right] \bmod 7.$$

Although this expression looks daunting and complicated, it is actually simple[13] because of a common subexpression $\frac{y + 11(y \bmod 2)}{2}$ that only needs to be calculated once.

Anytime adding 11 is needed, subtracting 17 yields equivalent results. While subtracting 17 may seem more difficult to mentally perform than adding 11, there are cases where subtracting 17 is easier, especially when the number is a two-digit number that ends in 7 (such as 17, 27, 37, ..., 77, 87, and 97).

### Nakai's formula

Another method for calculating the doomsday was proposed by H. Nakai in 2023.[14]

As above, let the year number $n$ be expressed as $n = 100c + y$, where $c$ and $y$ represent the century and the last two digits of the year, respectively. If $c_2$ and $y_2$ denote the remainders when $c$ and $y$ are divided by 4, respectively, then the number representing the day of the week for the doomsday is given by the remainder $5(c_2 + y_2 - 1) + 10y \mod (7)$.

#### Example

(August 7, 1966) The remainder on dividing $(c, y) = (19, 66)$ by 4 is $(c_2, y_2) = (3, 2)$, which gives $5 \cdot (3 + 2 - 1) = 20 \equiv 6$; 10 times $y$ is $10 \cdot 66 = 660 \equiv 2$, so doomsday for 1966 is $6 + 2 = 8 \equiv 1$, that is, Monday. The difference between 7 and the doomsday in August (namely 8) is $7 - 8 = -1 \equiv 6$, so the answer is $1 + 6 = 7 \equiv 0$, Sunday.[15]

## Correspondence with dominical letter

Doomsday is related to the dominical letter of the year as follows.

| | Dominical letter | |
|---|---|---|
| Doomsday | Common year | Leap year |
| Sunday | C | DC |
| Monday | B | CB |
| Tuesday | A | BA |
| Wednesday | G | AG |
| Thursday | F | GF |
| Friday | E | FE |
| Saturday | D | ED |

## 400-year cycle of anchor days

Since in the Gregorian calendar there are 146,097 days, or exactly 20,871 seven-day weeks, in 400 years, the anchor day repeats every four centuries. For example, the anchor day of 1700–1799 is the same as the anchor day of 2100–2199, i.e. Sunday.

(8/5) o⁷ One of the Oldest Written/Record commandments

END the GARDEN

5.01

(5/7) 12:07 4 // Really Sad to see this duck move so fast - I couldnt tell if it (female mallard) was upset/in-pain or/& fed drugs, never saw a duck move like that, and worried for my baby Geese (9:25am) //

☐ ~~Mythology~~? ☒ Saints? ☐ ~~Angels~~?

☒ witches ⟷ archetype

☐ Medical categories/systems → ☐ micro big

SPIRITS ~~CHURCH~~ judged by S. for Being too Prideful

↓ assist fellow man → for save

no assist (essentially "a Kill")

Pride Spectrum

"GO UP THE TREE WITH THE BEAST NOT DOWN!"

The Need for Google to not be dismissed

GLASS < & ACORN HEART SQUIRREL WINK SUSPICIONS

☒ micro: forbes &, zaman ☒ astro

☒ multi. ☐ eco's (☒ weather &

☐ MAKE THE BEST PICTURE MAPS BOOK (1-2) subatomic → Univers SMALL! (THESE BOOKS ARE SHIT! inefficient/size/txt/excess but will help make conden sed more exciting book)

SJ Barrett Unified Theory Quickly!

☐ WITH BETTER GLOSSARIES/KEY TERMS APPENDIX

Labor · Police · Ultra Rich & Powerful had · Priest

of OUT (Kings & Queens) CASTS

Pirates/thieves/outcasts · Priests/ of Minor Religions (not the MONOPOLY religions)

Oxygen & more (mixes /gasses /nutrient

In handheld TANKS

for triage @ 930pm

☐ peripheral ~~smear~~

(I asked Imagery direct real time visual representation this is what she thought I meant)

√ 1. electrocardiogram

5. Testimony*

√ 2. Heart/chest X-ray/scan

√ 3. Urinal Sample

4 // made it back to forest spot slash left another foster half filled, wouldve been full

6

The full 400-year cycle of doomsdays is given in the adjacent table. The centuries are for the Gregorian and proleptic Gregorian calendar, unless marked with a J for Julian. The Gregorian leap years are highlighted.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Julian centuries | -1600J | -1500J | -1400J | -1300J | -1200J | -1100J | -1000J |
| | −900J | −800J | −700J | −600J | −500J | −400J | −300J |
| | −200J | −100J | 0J | 100J | 200J | 300J | 400J |
| | 500J | 600J | 700J | 800J | 900J | 1000J | 1100J |
| | 1200J | 1300J | 1400J | 1500J | 1600J | 1700J | 1800J |
| | 1900J | 2000J | 2100J | 2200J | 2300J | 2400J | 2500J |
| | 2600J | 2700J | 2800J | 2900J | 3000J | 3100J | 3200J |
| | 3300J | 3400J | 3500J | 3600J | 3700J | 3800J | 3900J |

Negative years use astronomical year numbering. Year 25BC is −24, shown in the column of −100J (proleptic Julian) or −100 (proleptic Gregorian), at the row 76.

**Frequency of Gregorian doomsday in the 400-year cycle per weekday and year type**

| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Total |
|---|---|---|---|---|---|---|---|---|
| Non-leap years | 43 | 43 | 43 | 43 | 44 | 43 | 44 | 303 |
| Leap years | 13 | 15 | 13 | 15 | 13 | 14 | 14 | 97 |
| Total | 56 | 58 | 56 | 58 | 57 | 57 | 58 | 400 |

A leap year with Monday as doomsday means that Sunday is one of 97 days skipped in the 400-year sequence. Thus the total number of years with Sunday as doomsday is 71 minus the number of leap years with Monday as doomsday, etc. Since Monday as doomsday is skipped across February 29, 2000, and the pattern of leap days is symmetric about that leap day, the frequencies of doomsdays per weekday (adding common and leap years) are symmetric about Monday. The frequencies of doomsdays of leap years per weekday are symmetric about the doomsday of 2000, Tuesday.

The frequency of a particular date being on a particular weekday can easily be derived from the above (for a date from January 1 – February 28, relate it to the doomsday of the previous year).

For example, February 28 is one day after doomsday of the previous year, so it is 58 times each on Tuesday, Thursday and Sunday, etc. February 29 is doomsday of a leap year, so it is 15 times each on Monday and Wednesday, etc.

### 28-year cycle

Regarding the frequency of doomsdays in a Julian 28-year cycle, there are 1 leap year and 3 common years for every weekday, the latter 6, 17 and 23 years after the former (so with intervals of 6, 11, 6, and 5 years; not evenly distributed because after 12 years the day is skipped in the sequence of doomsdays). The same cycle applies for any given date from March 1 falling on a particular weekday.

For any given date up to February 28 falling on a particular weekday, the 3 common years are 5, 11, and 22 years after the leap year, so with intervals of 5, 6, 11, and 6 years. Thus the cycle is the same, but with the 5-year interval after instead of before the leap year.

Thus, for any date except February 29, the intervals between common years falling on a particular weekday are 6, 11, 11. See e.g. at the bottom of the page Common year starting on Monday the years in the range 1906–2091.

For February 29 falling on a particular weekday, there is just one in every 28 years, and it is of course a leap year.

### Julian calendar

The Gregorian calendar is currently accurately lining up with astronomical events such as solstices. In 1582 this modification of the Julian calendar was first instituted. To correct for calendar drift, 10 days were skipped, so doomsday moved back 10 days (i.e. 3 weekdays): Thursday, October 4 (Julian, doomsday is Wednesday) was followed by Friday, October 15 (Gregorian, doomsday is Sunday). The table includes Julian calendar years, but the algorithm is for the Gregorian and proleptic Gregorian calendar only.

Note that the Gregorian calendar was not adopted simultaneously in all countries, so for many centuries, different regions used different dates for the same day.

## Full examples

### Example 1 (1985)

Suppose we want to know the day of the week of September 18, 1985. We begin with the century's anchor day, Wednesday. To this, add $a$, $b$, and $c$ above:

- $a$ is the floor of $\frac{85}{12}$, which is 7.
- $b$ is $85 \bmod 12$, which is 1.
- $c$ is the floor of $\frac{b}{4}$, which is 0.

This yields $a + b + c = 8$. Counting 8 days from Wednesday, we reach Thursday, which is the doomsday in 1985. (Using numbers: In modulo 7 arithmetic, 8 is congruent to 1. Because the century's anchor day is Wednesday (index 3), and 3 + 1 = 4, doomsday in 1985 was Thursday (index 4).) We now compare September 18 to a nearby doomsday, September 5. We see that the 18th is 13 past a doomsday, i.e. one day less than two weeks. Hence, the 18th was a Wednesday (the day preceding Thursday). (Using numbers: In modulo 7 arithmetic, 13 is congruent to 6 or, more succinctly, −1. Thus, we take one away from the doomsday, Thursday, to find that September 18, 1985, was a Wednesday.)

### Example 2 (other centuries)

Suppose that we want to find the day of week that the American Civil War broke out at Fort Sumter, which was April 12, 1861. The anchor day for the century was 94 days after Tuesday, or, in other words, Friday (calculated as $18 \times 5 + \lfloor \frac{18}{4} \rfloor$; or just look at the chart, above, which lists the century's anchor days). The digits 61 gave a displacement of six days so doomsday was Thursday. Therefore, April 4 was Thursday so April 12, eight days later, was a Friday.

## See also

- Ordinal date
- Computus – Gauss algorithm for Easter date calculation
- Zeller's congruence – An algorithm (1882) to calculate the day of the week for any Julian or Gregorian calendar date.
- Mental calculation

## References

1. John Horton Conway, "Tomorrow is the Day After Doomsday" (https://web.archive.org/web/20240907031643/https://www.archim.org.uk/eureka/archive/Eureka-36.pdf) (PDF). Eureka. October 1973. pp. 28–32.
2. Richard Guy, John Horton Conway, Elwyn Berlekamp : "Winning Ways: For Your Mathematical Plays, Volume. 2: Games in Particular", pages 795–797, Academic Press, London, 1982, ISBN 0-12-091102-7.
3. Lewis Carroll, "To Find the Day of the Week for Any Given Date", *Nature*, March 31, 1887. doi:10.1038/035517a0 (https://doi.org/10.1038%2F035517a0)
4. Martin Gardner, *The Universe in a Handkerchief: Lewis Carroll's Mathematical Recreations, Games, Puzzles, and Word Plays*, pages 24–26, Springer-Verlag, 1996.
5. "What Day is Doomsday" (https://ww2.amstat.org/mam/2014/calendar/doomsday.html). Mathematics Awareness Month. April 2014.
6. Alpert, Mark (April 1, 1999). "Not Just Fun and Games" (https://www.scientificamerican.com/article/not-just-fun-and-games/). *Scientific American*. Retrieved April 18, 2024.
7. The table is filled in horizontally, skipping one column for each leap year. This table cycles every 28 years, except in the Gregorian calendar on years that are a multiple of 100 (such as 1800, 1900, and 2100 which are not leap years) that are not also a multiple of 400 (like 2000 which is still a leap year). The full cycle is 28 years (1,461 weeks) in the Julian calendar and 400 years (20,871 weeks) in the Gregorian calendar.
8. Torrence, Bruce; Torrence, Eve. "John H. Conway – Doomsday, part 1" (https://www.youtube.com/watch?v=T_nQG-Bzxsg). *YouTube*. Mathematical Association of America. Archived (https://ghostarchive.org/varchive/youtube/20211221/T_nQG-Bzxsg) from the original on December 21, 2021. Retrieved April 14, 2020.
9. "The Doomsday Algorithm – Numberphile" (https://www.youtube.com/watch?v=z2x3SSBVGJU). *YouTube*. Retrieved July 9, 2023.
10. Limeback, Rudy (January 3, 2017). "Doomsday Algorithm" (http://rudy.ca/doomsday.html). Retrieved May 27, 2017.
11. "On what day of the week is Christmas? Use the Doomsday Rule" (https://www.irishtimes.com/news/science/on-what-day-of-the-week-is-christmas-use-the-doomsday-rule-1.4427431). *The Irish Times*. Retrieved July 20, 2022.
12. John Horton Conway, "Tomorrow is the Day After Doomsday" (https://www.archim.org.uk/eureka/archive/Eureka-36.pdf) (PDF). Eureka. October 1973. pp. 29–30. "Each ordinary year has its Doomsday 1 day later than the previous year, and each leap year 2 days later. It follows that within any given century a dozen years advances Doomsday by 12 + 3 = 15 days = 1 day. ('A dozen years is but a day.') So we add to the Doomsday for the century year the number of dozens of years thereafter, the remainder, and the number of fours in the remainder."
13. Chamberlain Fong, Michael K. Walters: "Methods for Accelerating Conway's Doomsday Algorithm (part 2)" (https://arxiv.org/abs/1010.0765), 7th International Congress on Industrial and Applied Mathematics (2011).
14. Nakai, Hirofumi (June 1, 2023). "A Simple Formula for Doomsday" (https://link.springer.com/article/10.1007/s00283-022-10229-3). *The Mathematical Intelligencer*. **45** (2): 131–132. doi:10.1007/s00283-022-10229-3 (https://doi.org/10.1007%2Fs00283-022-10229-3). ISSN 1866-7414 (https://search.worldcat.org/issn/1866-7414).
15. thatsmaths (June 22, 2023). "A Simple Formula for the Weekday" (https://thatsmaths.com/2023/06/22/a-simple-formula-for-the-weekday/). *ThatsMaths*. Retrieved March 21, 2025.

## External links

- Encyclopedia of Weekday Calculation by Hans-Christian Solka, 2010 (https://web.archive.org/web/20061018103244/http://www.cs.wustl.edu/~ksl2/mathpoem.html)
- World records for mentally calculating the day of the week in the Gregorian Calendar (http://www.recordholders.org/en/records/dates.html)
- National records for finding Calendar Dates (http://www.recordholders.org/en/list/mental-calculation-rankings.html)
- World Ranking of Memoriad Mental Calendar Dates (http://www.memoriad.com/index.asp?s=kategoriler&b=kategori-detay&kategoriid=dcacea11f97125360e50694fd11c2ae4&lang=EN) (all competitions combined)
- Doomsday Algorithm (http://rudy.ca/doomsday.html)
- Finding the Day of the Week (https://web.archive.org/web/20070115153606/http://www.theworldofstuff.com/other/day.html)
- Poem explaining the Doomsday rule (https://web.archive.org/web/20061018103244/http://www.cs.wustl.edu/~ksl2/mathpoem.html) at the Wayback Machine (archived October 18, 2006)
- Doomsday Calculator (https://www.timeanddate.com/date/doomsday-calculator.html) at timeanddate

Retrieved from "https://en.wikipedia.org/w/index.php?title=Doomsday_rule&oldid=1347142408"